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09/828,940	04/10/2001	Yuji Hanada	P20492	6656

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EXAMINER

LUK, LAWRENCE W

ART UNIT

PAPER NUMBER

2838

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/828,940	HANADA ET AL.
	Examiner Lawrence Luk	Art Unit 2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_.  
 2a) This action is **FINAL**.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 10-22 is/are allowed.  
 6) Claim(s) 1-7,23 and 24 is/are rejected.  
 7) Claim(s) 8,9 and 25-27 is/are objected to.  
 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 11) The proposed drawing correction filed on \_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.  
 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.  
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.  
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____
2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____	6) <input type="checkbox"/> Other: ____

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al. (5,408,842) in combination with Ashley (5,754,384).

In regard to claim 1, Goto et al. discloses a capacitor which is connected in parallel to said battery to be charged by said battery (refer to abstract lines 3-11); and a restricting device which restricts an output current of said battery while said capacitor is being charged with said battery (refer to col.7, lines 5-29), but fails to teach an overcurrent protective device with a battery.

Ashley shows an overcurrent protective device with a battery (refer to Fig.2 and col.2, lines 35-37).

It would have been obvious to person having ordinary skill in the art at the time of the invention made to modify the device of Goto et al. to include an overcurrent protective device with a battery as taught by Ashley for the purpose of improving the battery with protective circuit.

In regard to claim 2, Goto et al. shows a voltage detector which detects a terminal voltage across said capacitor, wherein said restricting device restricts said

output current of said battery in accordance with said terminal voltage detected by said voltage detector (refer to col.1, lines 52-53).

In regard to claim 3, Goto et al. shows the restricting device restricts said output current of said battery in accordance with said terminal voltage detected by said voltage detector so that said output current of said battery becomes maximum within a range in which said overcurrent protective device is not actuated to interrupt said output current of said battery to said power supply circuit (refer to col.4, lines 38-45).

In regard to claim 5, Goto et al. shows the restricting device comprises: a plurality of resistors connected in parallel via which said battery is connected to said capacitor; a plurality of switches with which each of said plurality of resistors can be connected to and disconnected from one of said battery and said capacitor; and a controller which controls said plurality of switches independently of one another in accordance with said terminal voltage detected by said voltage detector (refer to col.7, line 51 to col.8, line 5).

In regard to claim 6, Goto et al. shows the restricting device comprises: a plurality of field effect transistors connected in parallel via which said battery is connected to said capacitor (refer to col.7, lines 53-64); and a controller which controls an ON/OFF state of each of said plurality of field effect transistors in accordance with said terminal voltage detected by said voltage detector (refer to col.1, lines 52-56).

In regard to claim 7, Goto et al. shows the restricting device comprises: a field effect transistor via which said battery is connected to said capacitor (refer to col.7, lines 53-64); and a controller which controls said output current of said battery by controlling

a voltage across a gate and a source of said field effect transistor in accordance with said terminal voltage detected by said voltage detector (refer to col.1, lines 50-56).

3. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al. (5,408,842) in combination with Ashley (5,754,384) as discussed above, and further in combination with Tsurumi et al. (6,437,538).

In regard to claim 23, Goto et al. and Ashley disclose the elements as claimed, except for the capacitor comprises an electric double layer capacitor.

Tsurumi et al. shows the capacitor comprises an electric double layer capacitor (refer to col.6, lines 26-30).

It would have been obvious to person having ordinary skill in the art at the time of the invention made to modify the device of Goto et al. and Ashley to include the capacitor comprises an electric double layer capacitor as taught by Tsurumi et al. for the purpose of improving the capacitor can store enough of voltage.

In regard to claim 24, Tsurumi et al. shows a battery comprises a rechargeable battery (refer to col.2, lines 40-43).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al. (5,408,842) in combination with Ashley (5,754,384) as discussed above, and further in combination with Nagai et al. (5,982,153).

Goto et al. and Ashley disclose the elements as claimed, except for a variable resistor via which said battery is connected to said capacitor.

Nagai et al. shows a variable resistor via which said battery is connected to said capacitor (refer to col.11, lines 33-35), and a controller which controls said output current of said battery by varying a resistance value of said variable resistor in accordance with said terminal voltage detected by said voltage detector (refer to col.12, lines 3-12).

It would have been obvious to person having ordinary skill in the art at the time of the invention made to modify the device of Goto et al. and Ashley to include a variable resistor via which said battery is connected to said capacitor as taught by Nagai et al. for the purpose of improving a storage capacitor power supply.

***Allowable Subject Matter***

5. Claims 10-22 are allowable.

Claim 10 is allowable. The reason for allowance is that the prior art of record teaches a power supply circuit comprising: a capacitor; a first switch provided in a primary path for connecting said battery with said capacitor; a second switch provided in an alternative path for connecting said battery with said capacitor; a voltage detector which detects a terminal voltage across said capacitor; and a charge control device which controls a switching operation of said first switch to intermittently charge said capacitor with said battery via said primary path in the case where said terminal voltage  $V_c$  across said capacitor is smaller than a predetermined threshold value; wherein said charge control device switches said primary path to said alternative path to continuously charge said capacitor with said battery via said alternative path in the case where said

terminal voltage across said capacitor exceeds said predetermined threshold value. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 11 and 12 are allowed due to their dependency on claim 10.

Claim 13 is allowable. The reason for allowance is that the prior art of record teaches a power supply circuit comprising: a capacitor; an adjusting condenser connected in parallel with said battery, said adjusting condenser having a capacitance so that when said capacitor is charged with said battery, said overcurrent protective device is not actuated to interrupt an output current of said battery to said power supply circuit; a switching element with which said adjusting condenser can be connected to and disconnected from said capacitor; and a charge control device which controls a switching operation of said switching element to intermittently charge said capacitor with power output from said battery 5 and said adjusting condenser. It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 14 and 15 are allowed due to their dependency on claim 13.

Claim 16 is allowable. The reason for allowance is that the prior art of record teaches a power supply circuit comprising: a first capacitor which can be connected in

parallel to said battery; a second capacitor which can be connected in parallel to said first capacitor; and a charge control device which controls a charging operation for charging said first capacitor and a charging operation for charging said second capacitors; wherein said charge control device repeats a main charging operation and a relay charging operation alternately; wherein said first capacitor is connected to said battery with said first capacitor being disconnected from said second capacitor, in order to charge said first capacitor with said battery in said main charging operation; and wherein said first capacitor is connected to said second capacitor with said first capacitor being disconnected from said battery, in order to charge said second capacitor with power output from said first capacitor in said relay charging operation.

It is these features found in the claim, as they are claimed in the combination, which has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 17-22 are allowed due to their dependency on claim 16.

6. Claims 8, 9 and 25-27 are objected to as being dependent upon a rejected base claim. The prior art of record fails to teach or reasonably suggest that the restricting device comprises a transistor, wherein a collector of said transistor is connected to a gate of said field effect transistor while an emitter of said transistor is connected to ground, and wherein said controller controls said voltage across said gate and a source of said field effect transistor by controlling a base voltage of said transistor, and the restricting device comprises a microcomputer comprising a voltage detector, a memory

and a comparator. Claims 8, 9 and 25-27 would be allowable if rewritten in independent from including all the limitations of the base claim.

*Conclusion*

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Luk whose telephone number is (703) 305-0617. The examiner can normally be reached on 7 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (703) 308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7724 for regular communications and (703)305-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

LWL  
April 25, 2003

*Lawrence Luk*  
examiner  
4/25/03